

practices.



CONVERSION OF AN ARC/INFO COVERAGE CONTAINING MULTIPLE ATTRIBUTE DATA
TO A MOSS MULTIPLE ATTRIBUTE DATA BASE

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ABSTRACT

Data exchange programs between government agencies provide an effective way of reducing redundancy of data entry and thereby reducing the overall cost of data capture. In addition to common data formats, data conversion programs are commonly used as a method by which data of interest to two or more agencies can be shared. Individual geographic information system format differences however, sometimes prevent complete utilization of shared data sets. ARC/INFO Version 5.0 supports a conversion program (ARCMOSS) allowing for the conversion of ARC/INFO coverages to MOSS data bases. The ARCMOSS program takes into account the thirty character limit for MOSS subjects and truncates the ARC/INFO attribute accordingly. As a result, critical information contained in the ARC/INFO coverage, which is not limited to thirty character attribute strings, is lost during the conversion process. A technique was developed whereby the complete ARC attributes can be transferred to a MOSS data base by utilizing MOSS's multiple attribute capabilities. ARC attributes greater than thirty characters, as well as the INFO relational database files can be ported to MOSS without losing any critical attribute information. This technique will allow MOSS users to take complete advantage of existing ARC coverages developed by other agencies, and therefore contribute to the sharing of data between agencies using different geographic information systems.

INTRODUCTION

Anadromous fisheries in the State of Alaska are extremely important to the well being of local, commercial, and recreational fishing industries, and exert significant influence on the local and state

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economies. Protection and enhancement of the anadromous fisheries in the Alaskan Pacific Coast drainages are therefore critically important to the maintenance of the resource and to the economic stability of the local communities and commercial fishing industry. Both the Bureau of Land Management (BLM) and the State of Alaska, Department of Fish and Game (ADF&G) share in the responsibilities of the management, protection and enhancement of this valuable resource. Although mutually responsible for this resource, each agency has its own independent goals and objectives; each agency has unique responsibilities associated with this resource; and each agency has developed its own approaches to satisfying these responsibilities utilizing information management technologies, including geographic information system capabilities.

The BLM's Anchorage District Office, is responsible for the management of the resources which occur on Alaska's public lands. With respect to the anadromous fisheries, the Anchorage District Office has the following goals and objectives: (1) to identify the streams that support anadromous fish; (2) increase habitat productivity in streams currently utilized by anadromous fish but with production lower than potential; (3) increase the available habitat for anadromous fish production; and (4) develop interagency habitat management plans for watersheds supporting anadromous fish populations. In order to meet these goals and objectives, an accurate inventory of streams and an understanding of their respective relationships with anadromous fish species was required. Based upon the total number of streams involved, the number of fish species, and the complex relationships between anadromous fish and their habitats, the BLM was faced with a formidable task. The utilization of the BLM's Map Overlay and Statistical System provided a mechanism by which BLM could apply geographic information system technology to support their inventory and related requirements.

Concurrent with the BLM responsibilities, the ADF&G was also tasked with the protection of anadromous fisheries. Since 1982, ADF&G has intensively surveyed Alaskan waters to identify and catalog waters which are important for spawning, rearing, and migration of anadromous fisheries. In addition, ADF&G is in the process of developing a permit process for the protection of anadromous fish habitat as legislated under state law (AS 16.05.840, AS 16.05.870, AS 16.20.060, AS 16.20.260 and any activity authorized under AS 16). ADF&G also utilizes geographic information system technology, including the ARC/INFO system, to support their data inventory and analysis requirements.

The shared responsibilities with respect to the protection of anadromous fisheries, and the similarities in which each agency technically approached meeting their goals and objectives, resulted in an ideal situation in which both agencies could benefit from information the other agency had developed. A cooperative agreement was therefore established between ADF&G and BLM which provided BLM access to critical anadromous fisheries information being collected by

ADF&G in exchange for any digital information BLM developed with respect to the geographic description of the relevant water courses. However, due to the fact that the two agencies utilized two unique geographic information systems (ie. ARC/INFO and MOSS), it was necessary to develop a conversion methodology in order to provide complete sets of information to both agencies in formats which were compatible with each agency's respective system.

The successful conversion required technical expertise in both ARC/INFO and MOSS, utilizing the data base management capability of INFO, and the multiple attribute capability of MOSS. Under BLM's contract YA-551-CT5-440003 for digitizing services, TGS Technology, Inc.'s Computer Mapping Division in Fort Collins, Colorado, had supported BLM's digitizing and MOSS data base construction requirements for several years. As a commercial data conversion service bureau, TGS's Computer Mapping Division also supports map conversion using the ARC/INFO system. Using that expertise, TGS developed the necessary technical and quality control procedures required to combine information from both agencies into two separate, but functionally identical data bases which can now be used by both agencies in supporting their mission requirements.

METHODOLOGY

The source data included digital data files of hydrologic features in ARC/INFO format, as captured by a combination of scanning and hand digitizing, and provided by the Anchorage District Office. In addition to the digital files, hard copy maps annotated with stream codes and descriptive information concerning the anadromous fisheries associations were provided by ADF&G. ADF&G also provided the relevant publications "Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes", which describes each anadromous stream segment by number.

The digital data were provided as individual ARC coverages of 1:63,360-scale quadrangles in ARC EXPORT format. Approximately 140 quadrangles were processed. These data were loaded onto a Prime 4150, IMPORTED into ARC/INFO (Rev. 5.0) and displayed. The first phase of the project was to edge match all quadrangles to produce a continuous data base. After edgematching, each arc representative of an anadromous stream segment was coded with the ADF&G stream code value (Table 1). The development of the stream code is adequately described in the referenced ADF&G publication. Briefly, the stream code numerically defines the ADF&G statistical fishing district for the body of saltwater into which the stream flows, stream order value, and any lake associations.

Table 1 - ARC Coverage Format

<u>FNODE</u>	<u>TNODE</u>	<u>LPOLY</u>	<u>RPOLY</u>	<u>LENGTH</u>	<u>User-ID#</u>	<u>STREAM CODE</u>
1	2	0	0	1.4	1	335-20-16600-2741-3107

The descriptive information contained on the maps included the map name, stream name, list of species utilizing each stream segment, and the function which the stream supported (ie. migration, spawning, rearing). These data were entered into an INFO file, such that each field contained a specific attribute. Included in the INFO file was the stream code which was also associated with each stream segment in the ARC coverage (Table 2).

Table 2 - INFO File Format

<u>STREAM CODE</u>	<u>MAP NAME</u>	<u>STREAM NAME</u>	<u>SPECIES</u>	<u>USEAGE</u>
335-20-16600-2741-3107	Iditarod A-4	N. Fork George River	K	R

The stream code then was used to relate the ARC coverage to the INFO file, completing the ARC data processing requirement and resulting in a comprehensive ARC/INFO data base describing the anadromous fisheries. This data base was provided to the ADF&G.

To meet BLM requirements, the ARC/INFO coverage was then converted into a MOSS data base. In the ARC/INFO data base, the number of characters used to describe the each stream and associated fisheries data exceeded the thirty character limitation for a MOSS attribute. As a result, the multiple attribute capability of MOSS was utilized. The following steps were required to complete this portion of the conversion effort.

ARC coverages were first exported using the ARCMOSS command, which creates a MOSS IMPORT data set. This function requires that the data be in either the UTM projection or in geographic (ie. latitude, longitude) format. Secondly, one item from the ARC coverage must be redefined as the MOSS subject. Choices for the MOSS subject include the ARC coverage user-ID or associated attribute, that being the stream code. Since there may be two individual stream segments with identical stream codes, the unique ARC user-ID was used as the MOSS subject. The

resultant file is then imported into MOSS with the number of MOSS subjects equal to the number of ARC coverage user-ID's (Table 3).

Table 3 - MOSS Map Format

<u>ITEM #</u>	<u>SUBJECT</u>
1	1

This completes the conversion of the stream segments from ARC/INFO to MOSS. The next step is to convert the INFO data base into a MOSS multiple attribute file.

The INFO file was accessed in the ARC/INFO system and SAVED to separate ASCII disk file using the compress option. Similar to the ARC/INFO requirement that a common denominator be used to relate the ARC coverage to the INFO file, MOSS also requires a common denominator to allow for the association between the MOSS map and the MOSS multiple attribute file. The MOSS subject, derived from the ARC user-ID, provided this association. However, the MOSS map subject is defined as a character string, and therefore the equivalent value in the MOSS multiple attribute file must also be defined as a character string. Since this information is extracted from the INFO file, where the user-ID is an integer, a conflict occurs. The right justified integer value from INFO will not automatically translate into a left justified character string. A secondary program was developed which provided the capability to make this translation successful. Once completed, the map was then moved into the MOSS user area (Table 4).

Table 4 - MOSS Multiple Attribute File Format

<u>SUBJECT</u>	<u>STREAM CODE</u>	<u>MAP NAME</u>	<u>STREAM NAME</u>	<u>SPECIES</u>	<u>USEAGE</u>
1	335-20-16600-2741-3107	Iditarod A-4	N. Fork George River	K	R

Another important difference exists between the INFO data base and the MOSS multiple attribute data base. In the ARC coverage, stream segments which are not utilized by anadromous fisheries are not described in the INFO file. In the MOSS multiple attribute file however, each feature (subject) in the MOSS map must be accounted for in the multiple attribute file, regardless of whether or not it has anadromous fishery information associated with it. To resolve this

difference, the MOSS utility RESEQUENCE command is executed on the converted INFO file. The RESEQUENCE function adds appropriate records to the multiple attribute table for those MOSS map features which do not have anadromous fishery associations (Table 5).

Table 5 - MOSS Multiple Attribute File Format - RESEQUENCED

<u>SUBJECT</u>	<u>STREAM CODE</u>	<u>MAP NAME</u>	<u>STREAM NAME</u>	<u>SPECIES</u>	<u>USEAGE</u>
1	335-20-16600-2741-3107	Iditarod A-4	N. Fork George River	K	R
2	335-20-16600-2741	Iditarod A-4	N. Fork George River	CH-CO-K-W	S-S-S-M
3					
4					
5	335-20-16600-2741-3091	Iditarod A-4	N. Fork George River	K	R

The MOSS utility function, ATTRIBUTE DESCRIBE, was then used to create a .DESCRIBE file, which defines the MOSS multiple attribute field formats. These field formats are identical to the INFO field format specifications. The MOSS ADD.ATTRIBUTE function was then executed to establish the relationship between the MOSS map and the MOSS multiple attribute table. This final step completed the conversion process, and resulted in a MOSS map which provides the user with complete data for each feature. The resultant MOSS data bases were then provided to BLM for their anadromous fishery management requirements.

CONCLUSION

The ability to convert data from one geographic information system to another provides a mechanism by which data can be shared by multiple agencies. Using standard system functions, and a minimal amount of specialized programming, valuable anadromous fisheries data are being shared between the State of Alaska and the Bureau of Land Management. Sharing these data gives both agencies equivalent data bases which they can now apply independently to each of their respective missions. Sharing data in this manner has enhanced the ability of both agencies to meet their program goals and objectives, and eliminated the potential duplication of effort which would have occurred if they pursued these efforts independently.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the technical assistance of Mr. Mike Scott, BLM, Anchorage District Office, in providing accurate digital stream data, and in providing coordination between BLM, ADF&G, and TGS Technology, Inc. for this project.

APPENDIX

The following pages document the MOSS work sessions used in the development of the MOSS map and multiple attribute data base described in this paper. The example map was Iditarod A-4 and was one of the maps processed for this project. The authors hope that this example will allow other MOSS users to become familiar with the procedures, and promote the efforts by MOSS users to take advantage of existing ARC/INFO data sources which may be available through other agencies.

FUNCTION - Imports the ARC coverage into MOSS.

was an attempt to develop a system which would allow the user to enter data in a form which would be similar to the form used by the user in the field. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field.

1	135-20-1000-274-100	135-20-1000-274-100	135-20-1000-274-100
2	135-20-1000-274-100	135-20-1000-274-100	135-20-1000-274-100
3			
4			
5	135-20-1000-274-100	135-20-1000-274-100	135-20-1000-274-100

The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field.

CONCLUSION

The ability to convert data from one format to another is a very important feature of a system. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field. The system was designed to be used by the user in the field and to be able to store the data in a form which would be similar to the form used by the user in the field.

ACKNOWLEDGMENT

The authors wish to acknowledge the technical assistance of Mr. Mike Scott, NYS, Fisheries Division, in providing computer data, and in providing information on the system, and in providing information on the system, and in providing information on the system.

Appendix Exhibit 1 - IMPORT COMO

FUNCTION - Imports the ARC coverage into MOSS.

OK, MOSS AKHYDRO KEITH

OK, MOSS AKHYDRO KEITH

MAP OVERLAY AND STATISTICAL SYSTEM
8908 32 BIT RELEASE W/9001 PATCH

PRIMOS version 22 0.1.DOI / F77 Rev. T1.3-21.0 REQUIRED
"NEWS" COMMAND PROVIDES CURRENT SYSTEM INFORMATION

IF YOU HAVE ANY PROBLEMS, CALL YOUR STATE GIS OFFICE
IN EMERGENCIES CALL THE GIS HOTLINE: (FTS) 776-0990
(303) 236-0990

AKHYDRO is a valid MOSS MASTER PROJECT.

```
*****
*                FIELD VERSION                *
* 32 BIT MOSS FOR PRIMOS 22 1.DOI             *
* Use only the 32 Bit 89.08 Manual             *
*                *8908* 1/25/90                *
*****
```

ENTER COMMAND ? IMPORT

Input File name ?

IDA4.EXP

What do you wish to call the new map ?

IDA4

Enter NAME of map to use as a template for the new map header
or enter CARRIAGE RETURN to start map header from scratch

ENTER SOURCE OF MAP []
TGS/CMD

ENTER CREATION DATE []
1990

ENTER STUDYAREA NAME []
AKHYDRO

ENTER DESCRIPTION
[]

HYDROLOGY ON ALASKA'S IDITAROD A4

ENTER MAP VINTAGE []
1989

ENTER NUMBER OF SUBJECTS [1]
350

ENTER COORDINATE SCALE FACTOR [100.0000]

MAP PROJECTION

0 PROJECTION IS GEOGRAPHIC (LON/LAT)
COORDINATE UNITS ARE: DEGREES

DO YOU WISH TO CHANGE THE PROJECTION DESCRIPTION [N]
Y

OK, MOSS AKHYDRO KEITH

ELLIPSOID(0-19) ?

LONGITUDE OF ANY POINT WITHIN THE UTM ZONE ?
-157 00 00

LATITUDE OF ANY POINT WITHIN UTM ZONE 4 ?
62 00 00

IS THIS HEADER INFORMATION CORRECT [Y]

Y

ENTER DATATYPE

1 = POINT

2 = LINE

3 = POLYGON

5 = SAMPLE ELEVATION POINT

11 = (X,Y,Z) POINT

12 = (X,Y,Z) LINE

13 = (X,Y,Z) POLYGON

2

EXECUTING... PLEASE WAIT

IMPORT COMPLETE FOR THE NEW MAP: IDA4

306 ITEMS AND 306 SUBJECTS IN THE NEW MAP

THE INPUT FILE IS IDA4.EXP

DO YOU WISH TO DELETE THE INPUT FILE [N]

N

**** STOP

ENTER COMMAND ? EYE

USER KEITH EXITING MOSS

**** STOP

Appendix Exhibit 2 - RESEQUENCE COMO

FUNCTION - Resequences the converted INFO file to add non-anadromous hydrological features to the MOSS multiple attribute file, which were not included in the INFO file.

OK, MOSS AKHYDRO KEITH

OK, MOSS AKHYDRO KEITH

MAP OVERLAY AND STATISTICAL SYSTEM
8908 32 BIT RELEASE W/9001 PATCH

PRIMOS version 22.0.1.DOI / F77 Rev. T1.3-21.0 REQUIRED
"NEWS" COMMAND PROVIDES CURRENT SYSTEM INFORMATION

IF YOU HAVE ANY PROBLEMS, CALL YOUR STATE GIS OFFICE
IN EMERGENCIES. CALL THE GIS HOTLINE: (FTS) 776-0990
(303) 236-0990

AKHYDRO is a valid MOSS MASTER PROJECT.

* FIELD VERSION *
* 32 BIT MOSS FOR PRIMOS 22.1.DOI *
* Use only the 32 Bit 89.08 Manual *
* *8908* 1/25/90 *

ENTER COMMAND ? UTIL

ENTER MOSS UTILITY OPTION

- 1 = TERMINATE UTILITY SESSION [DEFAULT]
- 2 = DATATEST (MOSS MAP NAMES SUPPORT)
- 3 = ATTRIBUTE (MOSS MULTIPLE ATTRIBUTE SUPPORT)
- 4 = ATTDSE (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
- 5 = SUB2AT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
- 6 = APROJ (MOSS MAP NAMES PROJECTION ASSIGNMENT)
- 7 = BROWZ (MOSS MAP NAMES HEADER LISTING)
- 8 = PLOT.LEGEND (BUILD PLOTTER LEGEND FILE)
- 9 = MAKE.LOGO (BUILD PLOTTER LOGO FILE)
- 10 = SUBEDIT (MAP SUBJECT EDIT PROGRAM)
- 11 = SET.LEVEL (BUILD POLYCELL TRANSLATION FILE)
- 12 = TRANSFORM (TRANSFORM COORDINATES TO A PROJECTION)
- 13 = QUAD (MAKE A QUAD MAP IN IMPORT/EXPORT FORMAT)
- 14 = DLG3 (USGS DLG ASCII TO MOSS)
- 15 = MAPIDX (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
- 16 = XYSUBJECT (REFORMAT POINT DATA TO MOSS)
- 17 = ATT2SUB (ATTRIBUTE TO SUBJECT)

3

PLEASE ENTER MAP NAME

: IDA4

THE NUMBER OF ATTRIBUTES IS 7
THE NUMBER OF ITEMS IS 306

PLEASE ENTER DESIRED OPTION

- 1 = EXIT [DEFAULT]
- 2 = ADD A NEW ATTRIBUTE
- 3 = UPDATE AN EXISTING ATTRIBUTE
- 4 = CHANGE/DELETE KEY OR DESCRIPTOR
- 5 = LIST ATTRIBUTE FIELDS
- 6 = SEARCH AN ATTRIBUTE FIELD
- 7 = RESEQUENCE INPUT DATA FILE
- 8 = DELETE THE ATTRIBUTE FILE

7

ENTER THE SOURCE OF ORDER FOR THE ATTRIBUTE FILE

1 = Exit [Default]

2 = Map IDA4

3 = File IDA4.OUT

: 2

Enter name of data file to be resequenced:

IDA4.FISH

Enter START and STOP column positions (START# STOP#)

of the matching subject field in the data file

48, 51

Enter SUBJECT search start position [1]

: 1

RESEQUENCING, PLEASE WAIT...

COULD NOT FIND SUBJECT 1 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 2 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 3 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 4 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 5 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 6 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 7 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 8 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 9 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 10 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 11 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 12 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 13 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 14 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 15 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 16 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 17 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 18 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 19 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 20 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 21 IN DATA FILE - WRITING A BLANK RECORD
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COULD NOT FIND SUBJECT 29 IN DATA FILE - WRITING A BLANK RECORD
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COULD NOT FIND SUBJECT 43 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 44 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 45 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 46 IN DATA FILE - WRITING A BLANK RECORD
COULD NOT FIND SUBJECT 47 IN DATA FILE - WRITING A BLANK RECORD

[illegible]

[illegible]

THE NAME OF YOUR RESEQUENCED DATA FILE IS: IDA4.FISH.RES

OK, MOSS AKHYDRO KEITH

THE NUMBER OF ATTRIBUTES IS - 7
THE NUMBER OF ITEMS IS 306

PLEASE ENTER DESIRED OPTION

- 1 = EXIT [DEFAULT]
- 2 = ADD A NEW ATTRIBUTE
- 3 = UPDATE AN EXISTING ATTRIBUTE
- 4 = CHANGE/DELETE KEY OR DESCRIPTOR
- 5 = LIST ATTRIBUTE FIELDS
- 6 = SEARCH AN ATTRIBUTE FIELD
- 7 = RESEQUENCE INPUT DATA FILE
- 8 = DELETE THE ATTRIBUTE FILE

: 1

**** STOP

ENTER MOSS UTILITY OPTION

- 1 = TERMINATE UTILITY SESSION [DEFAULT]
- 2 = DATATEST (MOSS MAP NAMES SUPPORT)
- 3 = ATTRIBUTE (MOSS MULTIPLE ATTRIBUTE SUPPORT)
- 4 = ATTDSE (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
- 5 = SUB2AT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
- 6 = PROJ (MOSS MAP NAMES PROJECTION ASSIGNMENT)
- 7 = BROWZ (MOSS MAP NAMES HEADER LISTING)
- 8 = PLOT.LEGEND (BUILD PLOTTER LEGEND FILE)
- 9 = MAKE.LOGO (BUILD PLOTTER LOGO FILE)
- 10 = SUBEDIT (MAP SUBJECT EDIT PROGRAM)
- 11 = SET.LEVEL (BUILD POLYCELL TRANSLATION FILE)
- 12 = TRANSFORM (TRANSFORM COORDINATES TO A PROJECTION)
- 13 = QUAD (MAKE A QUAD MAP IN IMPORT/EXPORT FORMAT)
- 14 = DLG3 (USGS DLG ASCII TO MOSS)
- 15 = MAPIDX (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
- 16 = XYSUBJECT (REFORMAT POINT DATA TO MOSS)
- 17 = ATT2SUB (ATTRIBUTE TO SUBJECT)

: 1

MOSS UTILITY SESSION COMPLETED

ENTER COMMAND ? BYE

USER KEITH EXITING MOSS

**** STOP

Appendix Exhibit 3 - RESEQUENCE OUTPUT

FUNCTION - Output file resulting from the RESEQUENCE program.

(Note: Due to the paper width limitation, each record wraps around to the next line.)

- 1
- 2
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- 58
- 59
- 60

335-20-16600-2741-3121

R

IDA4

K

ONTS

335-20-16600-2741

S-S-S-M

89 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

90 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

95 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

102 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

103 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

110 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

112 GEORGE RIVER

CH-CO-K-W

ONKE-ONKI-ONTS-PR

335-20-16600-2741	S-S-S-M	113 114 115 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	116 117 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3107	R	118 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	119 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	120 121 122 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3107	R	123 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	124 125 126 127 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	128 129 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	130 131 132 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3101	R	133 134 135 136 IDA4	K	ONTS
335-20-16600-2741-3101	R	137 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	138 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3101	R	139 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	140 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	141 142 143 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075	R	144 145 146 147 NORTH FORK GEORGE RIVER IDA4	K	ONTS
335-20-16600-2741-3075-4077	R	148 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	149 150 151 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
		152 153 154		

1

335-20-16600-2741-3091	R	155 156 GEORGE RIVER IDA4	K	ONTS
335-20-16600-2741-3091-4011	R	157 IDA4	K	ONTS
335-20-16600-2741-3091	R	158 159 160 161 IDA4	K	ONTS
335-20-16600-2741-3091	R	162 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	163 164 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	165 166 167 168 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	169 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	170 171 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	172 173 174 175 176 177 178 179		
335-20-16600-2741	S-S-S-M	180 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075	R	181 NORTH FORK GEORGE RIVER IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	182 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075-4060	R	183 184 185 IDA4	K	ONTS
335-20-16600-2741-3075	R	186 187 188 NORTH FORK GEORGE RIVER IDA4	K	ONTS
335-20-16600-2741-3081-4020	R	189 IDA4	K	ONTS
335-20-16600-2741-3075	M-M-M	190 191 192 193 194 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075	M-M-M	195 196 197 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741	M-M-M	198 GEORGE RIVER	CH-CO-K-W	ONKE-ONKI-ONTS-PR

335-20-16600-2741-3081	R	199 200 201 202 IDA4	K	ONTS
335-20-16600-2741-3075-4054	R	203 204 205 IDA4	K	ONTS
335-20-16600-2741-3075	M-M-M	206 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075	M-M-M	207 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075	M-M-M	208 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741	S-S-S-M	209 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075	M-M-M	210 211 212 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741	S-S-S-M	213 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3081	R	214 215 IDA4	K	ONTS
335-20-16600-2741-3075-4065	R	216 217 218 219 220 IDA4	K	ONTS
335-20-16600-2741-3075	M-M-M	221 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3081	R	222 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	223 224 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	225 226 227 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075	M-M-M	228 229 230 231 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075	M-M-M	232 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075	M-M-M	233 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741-3075-4051	R	234 235 236 IDA4	K	ONTS
		237 238 239 240		

335-20-16600-2741	S-S-S-M	241 242 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	243 244 245 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075	M-M-M	246 247 NORTH FORK GEORGE RIVER IDA4	CH-K-W	ONKE-ONTS-PR
335-20-16600-2741	S-S-S-M	248 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	249 250 251 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	252 253 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	254 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3070	R	255 IDA4	K	ONTS
335-20-16600-2741-3070	R	256 257 258 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	259 260 261 262 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	263 264 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	265 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	266 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741	S-S-S-M	267 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3075-4029	R	268 269 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	270 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3070-4020	R	271 272 IDA4	K	ONTS
335-20-16600-2741-3075-4021	R	273 274 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	275 276 277 278 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR
335-20-16600-2741-3060	R	279 IDA4	K	ONTS
335-20-16600-2741	S-S-S-M	280 GEORGE RIVER IDA4	CH-CO-K-W	ONKE-ONKI-ONTS-PR

335-20-16600-2741

S-S-S-M

281
282
283
284 GEORGE RIVER
IDA4

CH-CO-K-W

ONKE-ONKI-ONTS-PR

285
286
287
288
289
290
291
292
293

335-20-16600-2741

S-S-S-M

294 GEORGE RIVER
IDA4

CH-CO-K-W

ONKE-ONKI-ONTS-PR

295
296
297

335-20-16600-2741

S-S-S-M

298 GEORGE RIVER
IDA4

CH-CO-K-W

ONKE-ONKI-ONTS-PR

299
300
301
302
303
304
305
306

Appendix Exhibit 4 - DESCRIBE COMO

FUNCTION - Defines the format of the MOSS multiple attribute file.

OK, MOSS AKHYDRO KEITH

OK, MOSS AKHYDRO KEITH

MAP OVERLAY AND STATISTICAL SYSTEM
8908 32 BIT RELEASE W/9001 PATCH

PRIMOS version 22.0.1.DOI / F77 Rev. T1.3-21.0 REQUIRED
"NEWS" COMMAND PROVIDES CURRENT SYSTEM INFORMATION

IF YOU HAVE ANY PROBLEMS, CALL YOUR STATE GIS OFFICE
IN EMERGENCIES, CALL THE GIS HOTLINE: (FTS) 776-0990
(303) 236-0990

AKHYDRO is a valid MOSS MASTER PROJECT.

```
*****
*           FIELD VERSION           *
* 32 BIT MOSS FOR PRIMOS 22.1.DOI  *
* Use only the 32 Bit 89.08 Manual  *
*           *8908* 1/25/90          *
*****
```

ENTER COMMAND ? UTIL

ENTER MOSS UTILITY OPTION

```
1 = TERMINATE UTILITY SESSION [DEFAULT]
2 = DATABTEST (MOSS MAP NAMES SUPPORT)
3 = ATTRIBUTE (MOSS MULTIPLE ATTRIBUTE SUPPORT)
4 = ATTDDES (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
5 = SUB2AT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
6 = APROJ (MOSS MAP NAMES PROJECTION ASSIGNMENT)
7 = BROWZ (MOSS MAP NAMES HEADER LISTING)
8 = PLOT.LEGEND (BUILD PLOTTER LEGEND FILE)
9 = MAKE.LOGO (BUILD PLOTTER LOGO FILE)
10 = SUBEDIT (MAP SUBJECT EDIT PROGRAM)
11 = SET.LEVEL (BUILD POLYCELL TRANSLATION FILE)
12 = TRANSFORM (TRANSFORM COORDINATES TO A PROJECTION)
13 = QUAD (MAKE A QUAD MAP IN IMPORT/EXPORT FORMAT)
14 = DLG3 (USGS DLG ASCII TO MOSS)
15 = MAPIDX (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
16 = XYSUBJECT (REFORMAT POINT DATA TO MOSS)
17 = ATT2SUB (ATTRIBUTE TO SUBJECT)
: 4
```

*** ATTRIBUTE DESCRIPTION PROGRAM ***

What do you wish to call the Definition File

IDA4.DESC

Provide a ten character description for "KEY" 1 [CR=Exit]

STREAM-COD

Provide a 60 character description of this "KEY"

ALASKA ADF+G STREAM CODES

The field type of this "KEY" is
1 - Integer 2 - Floating point 3 - Character
Select:

3

What is the field length of this "KEY"?

47

Attribute: 1 Key: STREAM-COD
 Description: ALASKA ADF+G STREAM CODES
 Type: CHARACTER Length: 47

Edit options: [0] - Proceed to next attribute (# 2)
 1 - Edit attribute KEY
 2 - Edit attribute DESCRIPTION
 3 - Edit field TYPE and LENGTH
 4 - QUIT
 5 - ABORT

Select:

0

Provide a ten character description for "KEY" 2 [CR=Exit]

USER-ID

Provide a 60 character description of this "KEY"

ARC-INFO USER ID

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select

3

What is the field length of this "KEY"?

4

Attribute: 2 Key: USER-ID
 Description: ARC-INFO USER ID
 Type: CHARACTER Length: 4

Edit options: [0] - Proceed to next attribute (# 3)
 1 - Edit attribute KEY
 2 - Edit attribute DESCRIPTION
 3 - Edit field TYPE and LENGTH
 4 - QUIT
 5 - ABORT

Select:

0

Provide a ten character description for "KEY" 3 [CR=Exit]

STREAM-NAM

Provide a 60 character description of this "KEY"

STREAM NAME

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select:

3

What is the field length of this "KEY"?

30

Attribute. 3 Key: STREAM-NAM
 Description: STREAM NAME
 Type: CHARACTER Length 30

Edit options: [0] - Proceed to next attribute (# 4)
 1 - Edit attribute KEY
 2 - Edit attribute DESCRIPTION
 3 - Edit field TYPE and LENGTH
 4 - QUIT
 5 - ABORT

Select:

0

Provide a ten character description for "KEY" 4 [CR=Exit]

ADF+G SPEC

Provide a 60 character description of this "KEY"

ALASKA DEPT. OF FISH AND GAME SPECIES ABBREVIATION

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select:

3

What is the field length of this "KEY"?

30

Attribute. 4 Key: ADF+G-SPEC
 Description: ALASKA DEPT. OF FISH AND GAME SPECIES ABBREVIATION
 Type: CHARACTER Length 30

Edit options: [0] - Proceed to next attribute (# 5)
 1 - Edit attribute KEY
 2 - Edit attribute DESCRIPTION
 3 - Edit field TYPE and LENGTH
 4 - QUIT
 5 - ABORT

Select:

0

Provide a ten character description for "KEY" 5 [CR=Exit]

BLM-SPECIE

Provide a 60 character description of this "KEY"

BLM SPECIES ABBREVIATION

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select:

3

What is the field length of this "KEY"?

50

Attribute: 5 Key: BLM-SPECIE

Description: BLM SPECIES ABBREVIATION

Type: CHARACTER Length: 50

Edit options: [0] - Proceed to next attribute (# 6)

1 - Edit attribute KEY

2 - Edit attribute DESCRIPTION

3 - Edit field TYPE and LENGTH

4 - QUIT

5 - ABORT

Select:

0

Provide a ten character description for "KEY" 6 [CR=Exit]

USE-SPECIE

Provide a 60 character description of this "KEY"

SPECIES USAGE OF THE STREAM

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select:

3

What is the field length of this "KEY"?

20

Attribute: 6 Key: USE-SPECIE

Description: SPECIES USAGE OF THE STREAM

Type: CHARACTER Length: 20

Edit options: [0] - Proceed to next attribute (# 7)

1 - Edit attribute KEY

2 - Edit attribute DESCRIPTION

3 - Edit field TYPE and LENGTH

4 - QUIT

5 - ABORT

Select:

0

Provide a ten character description for "KEY" 7 [CR=Exit]

QUAD-NAME

Provide a 60 character description of this "KEY"

NAME OF THE MAP ON WHICH THE STREAM OCCURS

The field type of this "KEY" is

1 - Integer 2 - Floating point 3 - Character

Select:

3

What is the field length of this "KEY"?

4

Attribute: 7 Key: QUAD-NAME
 Description: NAME OF MAP ON WHICH THE STREAM OCCURS
 Type: CHARACTER Length: 4

Edit options: [0] - Proceed to next attribute (# 8)
 1 - Edit attribute KEY
 2 - Edit attribute DESCRIPTION
 3 - Edit field TYPE and LENGTH
 4 - QUIT
 5 - ABORT

Select:

4

**** STOP

ENTER MOSS UTILITY OPTION

- 1 = TERMINATE UTILITY SESSION [DEFAULT]
- 2 = DATATEST (MOSS MAP NAMES SUPPORT)
- 3 = ATTRIBUTE (MOSS MULTIPLE ATTRIBUTE SUPPORT)
- 4 = ATTDSE (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
- 5 = SUB2AT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
- 6 = PROJ (MOSS MAP NAMES PROJECTION ASSIGNMENT)
- 7 = BROWZ (MOSS MAP NAMES HEADER LISTING)
- 8 = PLOT.LEGEND (BUILD PLOTTER LEGEND FILE)
- 9 = MAKE.LOGO (BUILD PLOTTER LOGO FILE)
- 10 = SUBEDIT (MAP SUBJECT EDIT PROGRAM)
- 11 = SET.LEVEL (BUILD POLYCELL TRANSLATION FILE)
- 12 = TRANSFORM (TRANSFORM COORDINATES TO A PROJECTION)
- 13 = QUAD (MAKE A QUAD MAP IN IMPORT/EXPORT FORMAT)
- 14 = DLG3 (USGS DLG ASCII TO MOSS)
- 15 = MAPIDX (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
- 16 = XYSUBJECT (REFORMAT POINT DATA TO MOSS)
- 17 = ATT2SUB (ATTRIBUTE TO SUBJECT)

1

MOSS UTILITY SESSION COMPLETED

BYE

USER KEITH EXITING MOSS

Appendix Exhibit 5 - .DESCRIBE FILE

FUNCTION - Lists results from the DESCRIBE program.

STREAM-COD

STREAM-COD

ALASKA ADF+G STREAM CODES

3

47

(T 1, A47)

1

USER-ID

ARC-INFO USER ID

3

4

(T 48, A 4)

1

STREAM-NAM

STREAM NAME

3

30

(T 52, A30)

1

ADF+G-SPEC

ALASKA DEPT. OF FISH AND GAME SPECIES ABBREVIATION

3

30

(T 82, A30)

1

BLM-SPECIE

BLM SPECIES ABBREVIATION

3

50

(T112, A50)

1

USE-SPECIE

SPECIES USAGE OF THE STREAM

3

20

(T162, A20)

1

QUAD-NAME

NAME OF MAP ON WHICH THE STREAM OCCURS

3

4

(T182, A 4)

2

NOSS UTILITY SESSION COMPLETED

EYE

USER KEITH EXITING NOSS

Appendix Exhibit 6 - ADDATTRIBUTE COMO

FUNCTION - Creates the relationship between the MOSS map and the MOSS multiple attribute file necessary to access the descriptive information associated with the MOSS map items.

ENTER MOSS UTILITY OPTION

1	=	TERMINATE UTILITY SESSION (DEFAULT)
2	=	DATETEST (MOSS MAP NAME SUBJECT)
3	=	ATTRIBUTE (MOSS MULTIPLE ATTRIBUTE SUBJECT)
4	=	ATTDES (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
5	=	SUBCAT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
6	=	APPROJ (MOSS MAP NAME PROJECTION ASSIGNMENT)
7	=	BROWL (MOSS MAP NAME HEADER LISTING)
8	=	PLOT LEGEND (BUILD PLOTTER LEGEND FILE)
9	=	MAKE LOGS (BUILD PLOTTER LOG FILE)
10	=	SUBEDIT (MAP SUBJECT EDIT PROGRAM)
11	=	SET LEVEL (BUILD POLYCELL TRANSLATION FILE)
12	=	TRANSFORM (TRANSDRM COORDINATES TO A PROJECTION)
13	=	LOAD (MAKE A LOAD MAP IN IMPORTEXPORT FORMAT)
14	=	DISC (USGS OLD ASCII TO MOSS)
15	=	HARISY (MAKE INDEX MAP OF PROJECT IN IMPORTEXPORT FORMAT)
16	=	XYSUBJECT (REFORMAT POINT DATA TO MOSS)
17	=	ATTSUBJ (ATTRIBUTE TO SUBJECT)

PLEASE ENTER MAP NAME
IDM4
THE ATTRIBUTE FILE DID NOT OPEN CORRECTLY. CREATING IT

THE NUMBER OF ATTRIBUTES IS 0
THE NUMBER OF ITEMS IS 204

PLEASE ENTER DESIRED OPTION

1	=	EXIT (DEFAULT)
2	=	ADD A NEW ATTRIBUTE
3	=	UPDATE AN EXISTING ATTRIBUTE
4	=	CHANGE/DELETE KEY OR DESCRIPTION
5	=	LIST ATTRIBUTE FIELDS
6	=	SEARCH AN ATTRIBUTE FIELD
7	=	SEQUENCE INPUT DATA FILE
8	=	DELETE THE ATTRIBUTE FILE

MOSS AKHYDRO KEITH

IF YOU HAVE ANY PROBLEMS, CALL YOUR STATE GIS OFFICE
IN EMERGENCIES. CALL THE GIS HOTLINE: (FTS) 776-0990
(303) 236-0990

AKHYDRO is a valid MOSS MASTER PROJECT.

```

*****
*           FIELD VERSION           *
*  32 BIT MOSS FOR PRIMOS  22.1.DOI  *
*  Use only the 32 Bit 89.08 Manual  *
*           *8908* 1/25/90         *
*****
ENTER COMMAND ? UTIL

```

ENTER MOSS UTILITY OPTION

```

1  =  TERMINATE UTILITY SESSION  [DEFAULT]
2  =  DATABTEST    (MOSS MAP NAMES SUPPORT)
3  =  ATTRIBUTE    (MOSS MULTIPLE ATTRIBUTE SUPPORT)
4  =  ATTDDES      (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
5  =  SUB2AT       (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
6  =  APROJ        (MOSS MAP NAMES PROJECTION ASSIGNMENT)
7  =  BROWZ        (MOSS MAP NAMES HEADER LISTING)
8  =  PLOT.LEGEND  (BUILD PLOTTER LEGEND FILE)
9  =  MAKE.LOGO    (BUILD PLOTTER LOGO FILE)
10 =  SUBEDIT      (MAP SUBJECT EDIT PROGRAM)
11 =  SET.LEVEL    (BUILD POLYCELL TRANSLATION FILE)
12 =  TRANSFORM    (TRANSFORM COORDINATES TO A PROJECTION)
13 =  QUAD         (MAKE A QUAD MAP IN IMPORT/EXPORT FORMAT)
14 =  DLG3         (USGS DLG ASCII TO MOSS)
15 =  MAPIDX       (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
16 =  XYSUBJECT    (REFORMAT POINT DATA TO MOSS)
17 =  ATT2SUB      (ATTRIBUTE TO SUBJECT)

```

PLEASE ENTER MAP NAME

: IDA4

THE ATTRIBUTE FILE DID NOT OPEN CORRECTLY. CREATING IT.

```
THE NUMBER OF ATTRIBUTES IS      0
THE NUMBER OF ITEMS IS          306
```

PLEASE ENTER DESIRED OPTION

```

1  =  EXIT  [DEFAULT]
2  =  ADD A NEW ATTRIBUTE
3  =  UPDATE AN EXISTING ATTRIBUTE
4  =  CHANGE/DELETE KEY OR DESCRIPTOR
5  =  LIST ATTRIBUTE FIELDS
6  =  SEARCH AN ATTRIBUTE FIELD
7  =  RESEQUENCE INPUT DATA FILE
8  =  DELETE THE ATTRIBUTE FILE

```


: 2

WILL YOU BE USING A DEFINITION FILE? [CR = NO]

: Y

ENTER THE NAME OF THE ATTRIBUTE DEFINITION FILE

IDA4.DESC

PLEASE ENTER THE NAME OF THE INPUT DATA FILE

IDA4.FISH.RES

THE NUMBER OF ATTRIBUTES IS 7

THE NUMBER OF ITEMS IS 306

PLEASE ENTER DESIRED OPTION

- 1 = EXIT [DEFAULT]
- 2 = ADD A NEW ATTRIBUTE
- 3 = UPDATE AN EXISTING ATTRIBUTE
- 4 = CHANGE/DELETE KEY OR DESCRIPTOR
- 5 = LIST ATTRIBUTE FIELDS
- 6 = SEARCH AN ATTRIBUTE FIELD
- 7 = RESEQUENCE INPUT DATA FILE
- 8 = DELETE THE ATTRIBUTE FILE

WILL YOU BE USING A DEFINITION FILE? (Y/N)

ENTER THE NAME OF THE DEFINITION FILE (MAX 80 CHARACTERS)
IDAM DESC
PLEASE ENTER THE NAME OF THE INPUT DATA FILE
IDAM FISH RESOURCES 1-12-11 10:11:02 10:11:02 10:11:02
"IDAM FISH RESOURCES 1-12-11 10:11:02 10:11:02 10:11:02"
THE NUMBER OF ATTRIBUTES IS 1
THE NUMBER OF ITEMS IS 1
IF YOU HAVE ANY PROBLEMS, CALL THE HOTLINE: 1-800-555-1212
IN EMERGENCIES, CALL THE HOTLINE: 1-800-555-1212

- PLEASE ENTER DESIRED OPTION
- 1 = EXIT (DEFAULT)
 - 2 = ADD A NEW ATTRIBUTE
 - 3 = UPDATE AN EXISTING ATTRIBUTE
 - 4 = CHANGE/DELETE KEY OR DESCRIPTION
 - 5 = LIST ATTRIBUTE FIELDS
 - 6 = SEARCH AN ATTRIBUTE FIELD
 - 7 = RESEQUENCE INPUT DATA FILE
 - 8 = DELETE THE ATTRIBUTE FILE
- *****
FIELD VERSION 1.0

ENTER COMMAND ? UTIL

- ENTER MOSS UTILITY OPTION
- 1 = TERMINATE UTILITY SESSION (DEFAULT)
 - 2 = DATATEST (CHECK MAP NAMES SUPPORT)
 - 3 = ATTRIBUTE (CHECK MULTIPLE ATTRIBUTE SUPPORT)
 - 4 = ATTRIBS (BUILD MULTIPLE ATTRIBUTE DEFINITION FILE)
 - 5 = SUBJAT (SUBJECT TO MULTIPLE ATTRIBUTE INPUT)
 - 6 = PROJ (CHECK MAP NAME PROJECTION ASSIGNMENT)
 - 7 = ERDIT (CHECK MAP NAME HEADERS LISTING)
 - 8 = PLOT, LEGEND (BUILD PLOTTER LEGEND FILE)
 - 9 = NAME LOGO (BUILD PLOTTER LOGO FILE)
 - 10 = SUBEDIT (MAP SUBJECT EDIT PROGRAM)
 - 11 = SET LEVEL (BUILD POLYCELL TRANSLATION FILE)
 - 12 = TRANSFORM (TRANSFORM COORDINATES TO A PROJECTION)
 - 13 = GRID (MAKE A GRID MAP IN IMPORT/EXPORT FORMAT)
 - 14 = DLOG (CHECK TO I/O ASCII)
 - 15 = MAPIDX (MAKE INDEX MAP OF PROJECT IN IMPORT/EXPORT FORMAT)
 - 16 = XSUBJECT (REFORMAT POINT DATA TO MOSS)
 - 17 = ATTRSUB (ATTRIBUTE TO SUBJECT)

PLEASE ENTER MAP NAME

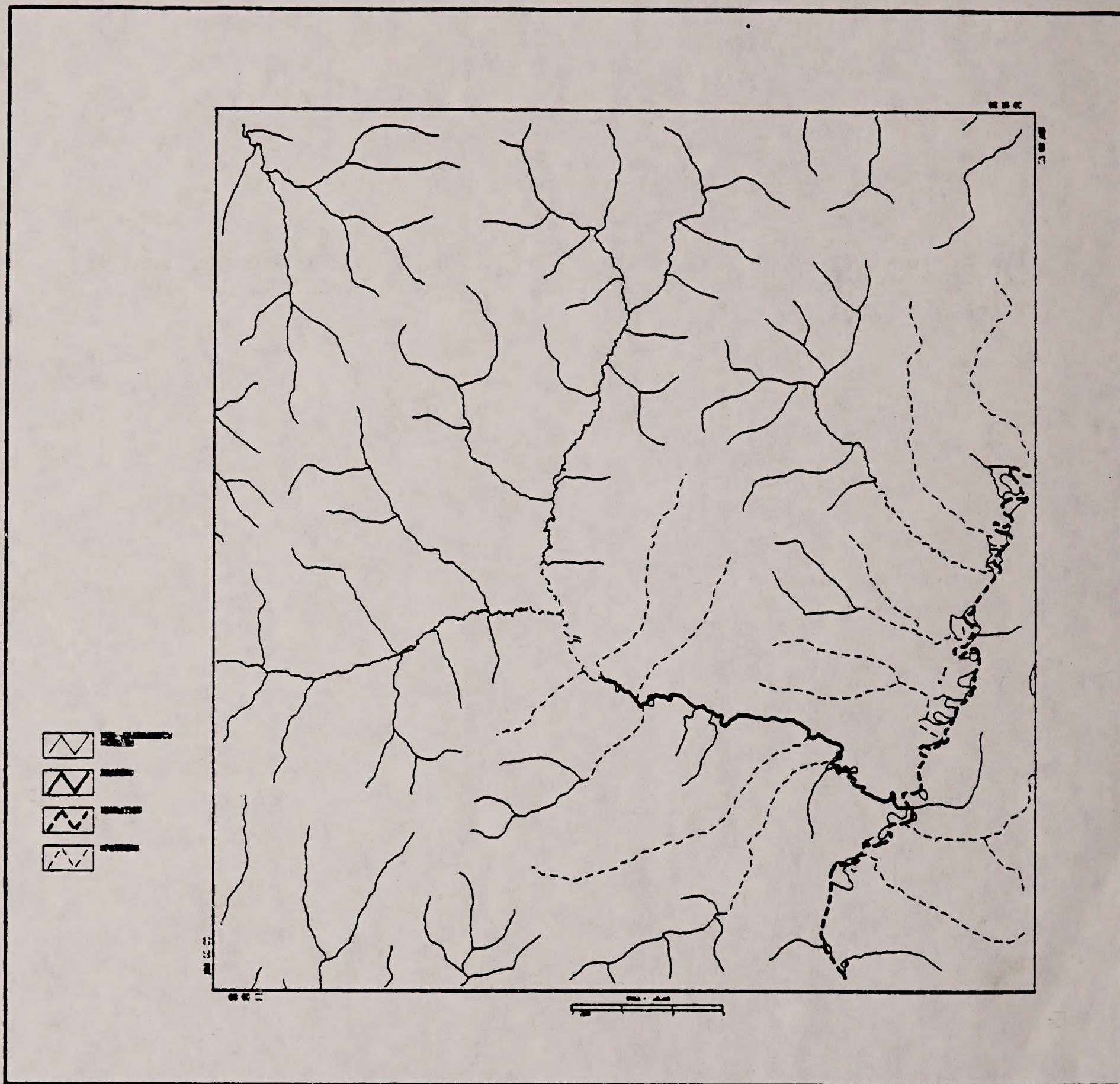
10A4
THE ATTRIBUTE FILE DID NOT OPEN CORRECTLY. CREATING IT

THE NUMBER OF ATTRIBUTES IS 0
THE NUMBER OF ITEMS IS 100

- PLEASE ENTER DESIRED OPTION
- 1 = EXIT (DEFAULT)
 - 2 = ADD A NEW ATTRIBUTE
 - 3 = UPDATE AN EXISTING ATTRIBUTE
 - 4 = CHANGE/DELETE KEY OR DESCRIPTION
 - 5 = LIST ATTRIBUTE FIELDS
 - 6 = SEARCH AN ATTRIBUTE FIELD
 - 7 = RESEQUENCE INPUT DATA FILE
 - 8 = DELETE THE ATTRIBUTE FILE

Appendix Exhibit 7 - SAMPLE PLOT

FUNCTION - Sample plot of Iditarod A-4, showing anadromous streams utilized by King Salmon for migration, spawning and rearing, and non-anadromous streams.



SPECIES USAGE FOR KING SALMON - IDITAROD A4, ALASKA

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